

# Reversed Sulcus-fixated Posterior Chamber Intraocular Lens Leading to Pupillary Capture

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*Pupillary capture in patients with pseudophakia is an uncommon event, in which part of the intraocular lens is displaced anterior to the iris. This report is of a 69-year-old woman in whom pupillary capture occurred after reversed insertion of a rigid intraocular lens.*

**Key words:** Cataract surgery, Lens implantation, intraocular

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## Introduction

Pupillary capture in patients with pseudophakia is an uncommon event, in which part of the intraocular lens (IOL) is displaced anterior to the iris. The condition has an incidence of 0.6% to 3.0%.<sup>1-3</sup> This report is of a patient in whom pupillary capture occurred after reversed insertion of a rigid IOL. The intention is to raise awareness of a 'forgotten' principle of IOL insertion, given the frequent use of foldable and injectable IOLs, and its impact on training.

## Case Report

A 69-year-old woman presented to the Surgical Cataract Unit at the Wolverhampton and Midlands Counties Eye Infirmary, Wolverhampton, UK, in 2004 with a dense cataract in the right eye. Her vision was counting fingers (CF) and she had an intraocular pressure (IOP) of 18 mm Hg in both eyes. She underwent right phacoemulsification cataract surgery. The pupil was well dilated preoperatively and intraoperatively. After continuous curvilinear capsulorhexis, routine phacoemulsification surgery was performed. However, there was a posterior capsular rent during capsular polishing. Anterior vitrectomy was performed and a rigid polymethyl methacrylate (PMMA) posterior chamber IOL (PCIOL; Rayner™, Model 755U; Rayner Intraocular Lenses Ltd, Hove, UK; optic size, 7.0 mm; overall diameter, 13.5 mm; haptic angulation, 10°) was inserted in the sulcus.

The patient was closely monitored postoperatively. Her IOP was controlled with oral acetazolamide SR 250 mg once daily for 1 week and her vision improved to 6/18 unaided. However, she had mild anterior uveitis and slight corneal oedema 1 day after

surgery, which was treated with topical 1% prednisolone and 0.5% chloramphenicol 4 times per day.

On day 32, she had a sudden decrease in vision to CF and a raised IOP of 42 mm Hg. Slit-lamp biomicroscopy showed corneal epithelial oedema. The anterior chamber was shallow in the periphery but deep centrally, with slight iris bombe. There was complete pupillary capture with the optic overlying the iris and the haptics remaining in the sulcus (Figure 1a). On maximal dilatation, the direction of the haptic was noted to be pointing clockwise, and confirmed the diagnosis of reversed IOL insertion (Figure 1b). Her IOP was controlled with acetazolamide 500 mg intravenously, topical 0.5% timolol twice a day and 1% apraclonidine 3 times a day. An attempt at maximal dilatation with topical 1% cyclopentolate, 10% phenylephrine, and supine posture proved unsuccessful. Neodymium:YAG laser peripheral iridotomy was not performed as the IOP was well controlled with antiglaucoma treatment. IOL exchange was planned and performed the next morning. The anterior chamber was deepened with 1% sodium hyaluronate, the IOL was explanted and replaced with the same rigid PMMA PCIOL. Peripheral iridectomy was also performed to prevent further pupillary block. She was given topical 1% prednisolone 4 times a day, 0.5% chloramphenicol 4 times a day, and 0.5% timolol twice a day. Treatment resulted in a rapid visual recovery to 6/9 and the IOP was controlled at 12 mm Hg. At her last follow-up visit, her vision was 6/6 and her IOP was 18 mm Hg with a stable, correctly placed IOL.

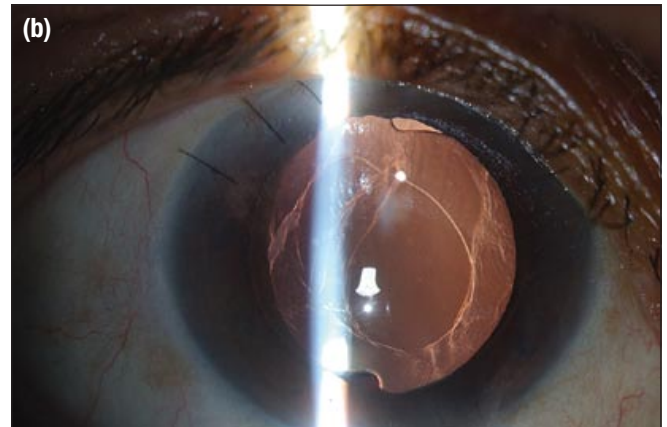
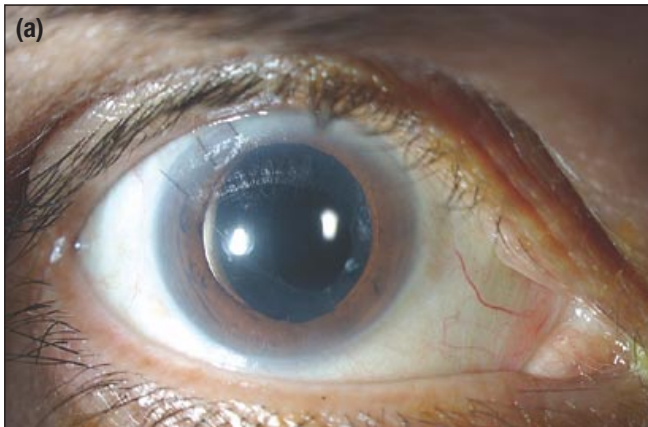
## Discussion

Phacoemulsification is a commonly performed procedure for cataract surgery. Reversed PCIOL is a rare complication of phacoemulsification cataract surgery, which can cause pupillary capture or capsular block syndrome, and may affect the refractive

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## Pupillary Capture after Reversed Insertion of an Intraocular Lens

Figure 1. A patient with pupillary capture after reversed insertion of an intraocular lens. (a) The optic edge is lying over the anterior surface of the iris; and (b) the reverse direction of the haptics.



outcome. This is due to the  $5^{\circ}$  to  $10^{\circ}$  angulation between the haptic and optic, which moves the optic forward and increases the risk of pupillary capture.<sup>4,5</sup> Sulcus-fixated PCIOL increases the risk of pupillary capture because of forward placement of the optic and haptics. Pupillary capture of a PCIOL has been reported as a finding when the patient attends for a routine examination or because the capture causes pain, blurred vision, or pupillary block with secondary glaucoma.<sup>6,7</sup>

The management of pupillary capture includes simple dilatation followed by use of miotic agents, which has a relatively low success rate, and non-surgical manoeuvres, including digital manipulation.<sup>7</sup> These procedures are less likely to succeed for a reversed sulcus-fixated PMMA lens as there is risk of recurrence of pupillary capture. Surgical management includes IOL exchange for a PMMA lens and IOL rotation of an acrylic/silicone lens.

The key message of this report is for surgeons to be aware of this potential complication with both PMMA and injectable lenses. Therefore, it is extremely important to pay attention to the direction of the IOL. If this complication is noted after insertion, it is better

to remove the PMMA lens and reinsert it. For a silicone/acrylic lens, the anterior chamber should be deepened with viscoelastic substances followed by full rotation of the lens in the bag.

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